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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/738,435	12/17/2003	Christopher Gregory Malone	200311632-1	8319
22879	7590	08/16/2006	EXAMINER	
HEWLETT PACKARD COMPANY P O BOX 272400, 3404 E. HARMONY ROAD INTELLECTUAL PROPERTY ADMINISTRATION FORT COLLINS, CO 80527-2400			LEO, LEONARD R	
			ART UNIT	PAPER NUMBER
			3753	

DATE MAILED: 08/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/738,435

Applicant(s)

MALONE ET AL.

Examiner

Leonard R. Leo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2006.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28,30 and 32-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-28,30 and 32-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/05</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The amendment filed on June 9, 2006 has been entered. Claims 1-28, 30 and 32-34 are pending.

Drawings

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the “fans located inside of the ... chassis ... force air against the one or more fins” in claim 8 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered. There appears to be no communication through the rear wall of the chassis for the air to contact the fins 118.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 2 is objected to because of the following informalities: the recitation of "one or more heat exchanger components comprise a heat exchanger component" is a dual recitation. Appropriate correction is required.

Claim 12 is objected to because of the following informalities: the recitation of "in combination with the rack-mounted computer chassis" is a dual recitation. Claim 1 already sets forth the heat exchanger in combination with a rack-mounted computer chassis." Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 33-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of "zero or more of the one or more server system fans" renders the claims indefinite. The claims sets forth a structure, namely a fan, then seeks to eliminate the structure. The scope of the claims cannot be determined.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 12-17, 25, 30 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Kociecki. Heat exchanger 14 having a vertical (i.e. top to bottom) and horizontal (i.e. left to right) dimension is mounted on a front surface 12 of the chassis. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of "rack-mounted computer" does not further limit the structure of a chassis.

Regarding claims 14-15, the wherein clause does not set forth a structural relationship and is inherently met by the device of Kociecki.

Regarding claim 16, as noted above, the recitation of "server system" does not further limit the structure of a processor. In this respect, transistors 398, 399 of Kociecki are read as a "processor."

Regarding claim 17, as noted above, the recitation of "server system" does not further limit the structure of a circuit board. In this respect, Kociecki discloses circuit boards 332, 368.

Regarding claim 30, Figure 14 of Kociecki discloses a front cut-away view of the rack.

Regarding claim 32, Figure 14 of Kociecki discloses air flow 440 produced by a fan.

Claims 1, 12, 14-17 and 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Tokuhara et al. Figures 3-7 of Tokuhara et al disclose heat exchanger fins 32e mounted on a rear surface 32d of the chassis. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from

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a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987). The recitation of "rack-mounted computer" does not further limit the structure of a chassis.

Regarding claims 14-15, the wherein clause does not set forth a structural relationship and is inherently met by the device of Tokuhara et al.

Regarding claim 16, as noted above, the recitation of "server system" does not further limit the structure of a processor. Arguendo, Tokuhara et al discloses CPU 36.

Regarding claim 17, as noted above, the recitation of "server system" does not further limit the structure of a circuit board. Arguendo, Tokuhara et al discloses circuit board 34.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-7, 13, 18-24 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara et al in view of Owens et al.

Tokuhara et al discloses all the claimed limitations except tubing in the heat exchanger. Although Tokuhara et al discloses tubing 72, the tubing is not external of the chassis.

Owens et al discloses an apparatus comprising a rack mountable chassis 80 having heat generating components 114, 116, 118, 120 therein, and an external heat exchanger mounted at the rear thereof, wherein the heat exchanger comprising fins 84 and tubing 88, 90, 92 for the purpose of improving heat exchange.

Since Tokuhara et al and Owens et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Owens et al would have been recognized in the pertinent art of Tokuhara et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuhara et al tubing in the external heat exchanger for the purpose of improving heat exchange as recognized by Owens et al.

Regarding claim 4, Figure 6 of Tokuhara et al discloses tubing 72 having a "first heat transfer section" abuts the CPU 36. The tubing 72 also has a "second heat transfer section" that abuts the fins 32e. Owens et al also discloses fins 84 abutting tubing 88, 90, 92.

Regarding claim 6, Tokuhara et al employs natural convection.

Regarding claims 7 and 23, the rack mounted chassis of Owens et al inherently employs fans or blowers for forced convection.

Regarding claims 13 and 30, Owens et al discloses a rack.

Regarding claims 19-22, the inclination of the tubing 72 of Tokuhara et al is read as "means for moving the fluid."

Claims 8-11, 26-28 and 32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tokuhara et al in view of Owens et al as applied to claims 2-7, 13, 18-24 and 30 above, and further in view of Aoki et al.

The combined teachings of Tokuhara et al and Owens et al lacks fans inside the chassis.

Aoki et al discloses an apparatus comprising a computer server chassis 3; processors 6; tubing sections 23, 13; and internal fans 14, 43 for the purpose of cooling internal components.

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Since Tokuhara et al and Aoki et al are both from the same field of endeavor and/or analogous art, the purpose disclosed by Aoki et al would have been recognized in the pertinent art of Tokuhara et al.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to employ in Tokuhara et al internal fans for the purpose of cooling internal components as recognized by Aoki et al. The wherein clause is merely a functional recitation. See MPEP 2114.

Regarding claims 9 and 26, Aoki et al discloses pump 15 for the liquid cooling system.

Regarding claims 10 and 28, Aoki et al discloses cold plates 16.

Regarding claim 11, Aoki et al discloses brine or an antifreeze liquid as the working fluid. As evidenced by Fox et al (column 7, lines 4-8), water and ethylene glycol is a well known coolant with a high boiling point in electronic cooling.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

No further comments are deemed necessary at this time.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonard R. Leo whose telephone number is (571) 272-4916. The examiner can normally be reached on Monday thru Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eric Keasel can be reached on (571) 272-4929. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



LEONARD R. LEO
PRIMARY EXAMINER
ART UNIT 3753

August 7, 2006